*Plasma***CAL** Single Element Calibration Standards (1000 & 10 000 µg/ml) for ICP-AES and ICP-MS are packaged with the economic needs of the modern laboratory in mind. Multiple volumes and extended expiry dates ensure that maximum cost efficiency is achieved. Standards are manufactured following ISO 9001:2000 and 17025 Quality Assurance Programs.

Single Element Standards 1000 µg/ml

"The Best Quality at the Best Value" - is what defines *Plasma***CAL** Single Element Calibration Standards for ICP-AES and ICP-MS. *Plasma***CAL** Standards are fully traceable to National Institute of Standards and Technology (NIST). A Standards Management Program included with each standard ensures that expiry dates are tracked.

- 2 expiry dates* (up to 21 months unopened & 15 months opened)
  - Longer shelf life for unopened bottles
- Guaranteed to +/- 0.5% of actual concentration
  - Confidence in long-term stability and accuracy
- Calibration for testing using NIST 3100 Series
  - Direct traceability to NIST

Element	Symbol	Matrix	Code	Catalog Number 1000 µg/ml 125 ml	250 ml	500 ml
Aluminum	Al	HNO_3	✓ ⑧	140-051-131	140-051-132	140-051-135
Aluminum	Al	HCl	✓ ⑧	140-052-131	140-052-132	140-052-135
Antimony	Sb	HNO_3*	✓ ⑧	140-051-511	140-051-512	140-051-515
Arsenic	As	HNO_3	✓ ⑧	140-051-331	140-051-332	140-051-335
Barium	Ba	HNO_3	✓ ⑧	140-051-561	140-051-562	140-051-565
Beryllium	Be	HNO_3	✓ ⑧	140-051-041	140-051-042	140-051-045
Bismuth	Bi	HNO_3	✓ ⑧	140-051-831	140-051-832	140-051-835
Boron	B	H_20		140-050-051	140-050-052	140-050-055
Cadmium	Cd	HNO_3	✓ ⑧	140-051-481	140-051-482	140-051-485
Calcium	Ca	HNO_3	✓ ⑧	140-051-201	140-051-202	140-051-205
Cerium	Ce	HNO_3	✓ ⑧	140-051-581	---	---
Cesium	Cs	HNO_3	✓ ⑧	140-051-551	---	---
Chromium	Cr	HNO_3	✓ ⑧	140-051-241	140-051-242	140-051-245
Chromium	Cr	HCl	✓ ⑧	140-052-241	140-052-242	140-052-245
Cobalt	Co	HNO_3	✓ ⑧	140-051-271	140-051-272	140-051-275
Copper	Cu	HNO_3	✓ ⑧	140-051-291	140-051-292	140-051-295
Dysprosium	Dy	HNO_3	✓ ⑧	140-051-661	---	---
Erbium	Er	HNO_3	✓ ⑧	140-051-681	---	---
Europium	Eu	HNO_3	✓ ⑧	140-051-631	---	---
Gadolinium	Gd	HNO_3	✓ ⑧	140-051-641	---	---
Gallium	Ga	HNO_3	✓ ⑧	140-051-311	140-051-312	140-051-315
Germanium	Ge	H_20		140-050-321	---	---
Gold	Au	HCl	✓ ⑧	140-052-791	140-052-792	140-052-795
Hafnium	Hf	HCl	✓ ⑧	140-052-721	---	---
Holmium	Ho	HNO_3	✓ ⑧	140-051-671	---	---
Indium	In	HNO_3	✓ ⑧	140-051-491	---	---

**Traces of tartaric acid*

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
- Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Single Element Standards
1000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number 1000 µg/ml 125 ml	250 ml	500 ml
Iridium	Ir	HCl	✓ ⑧	140-052-771	---	---
Iron	Fe	HNO_3	✓ ⑧	140-051-261	140-051-262	140-051-265
Lanthanum	La	HNO_3	✓ ⑧	140-051-571	---	---
Lead	Pb	HNO_3	✓ ⑧	140-051-821	140-051-822	140-051-825
Lithium	Li	HNO_3	✓ ⑧	140-051-031	140-051-032	140-051-035
Lutetium	Lu	HNO_3	✓ ⑧	140-051-711	---	---
Magnesium	Mg	HNO_3	✓ ⑧	140-051-121	140-051-122	140-051-125
Manganese	Mn	HNO_3	✓ ⑧	140-051-251	140-051-252	140-051-255
Mercury	Hg	HNO_3	✓ ⑧	140-051-801	140-051-802	140-051-805
Molybdenum	Mo	H_20		140-050-421	140-050-422	140-050-425
Neodymium	Nd	HNO_3	✓ ⑧	140-051-601	---	---
Nickel	Ni	HNO_3	✓ ⑧	140-051-281	140-051-282	140-051-285
Niobium	Nb	HF	✓ ⑧	140-050-411	---	---
Osmium*	Os	HCl	✓ ⑧	140-052-761	---	---
Palladium	Pd	HCl	✓ ⑧	140-052-461	140-052-462	140-052-465
Phosphorus	P	H_20		140-050-151	140-050-152	140-050-155
Platinum	Pt	HCl	✓ ⑧	140-052-781	140-052-782	140-052-785
Potassium	K	HNO_3	✓ ⑧	140-051-191	140-051-192	140-051-195
Praseodymium	Pr	HNO_3	✓ ⑧	140-051-591	---	---
Rhenium	Re	H_20		140-050-751	---	---
Rhodium	Rh	HCl	✓ ⑧	140-052-451	---	---
Rubidium	Rb	HNO_3	✓ ⑧	140-051-371	---	---
Ruthenium	Ru	HCl	✓ ⑧	140-052-441	---	---
Samarium	Sm	HNO_3	✓ ⑧	140-051-621	---	---
Scandium	Sc	HNO_3	✓ ⑧	140-051-211	140-051-212	140-051-215
Selenium	Se	HNO_3	✓ ⑧	140-051-341	140-051-342	140-051-345
Silicon	Si	H_20/tr. HF		140-050-141	140-050-142	140-050-145
Silver	Ag	HNO_3	✓ ⑧	140-051-471	140-051-472	140-051-475
Sodium	Na	HNO_3	✓ ⑧	140-051-111	140-051-112	140-051-115
Strontium	Sr	HNO_3	✓ ⑧	140-051-381	140-051-382	140-051-385
Sulfur	S	H_20		140-050-161	140-050-162	140-050-165
Tantalum	Ta	HF	✓ ⑧	140-050-731	---	---
Tellurium	Te	HCl	✓ ⑧	140-052-521	---	---
Terbium	Tb	HNO_3	✓ ⑧	140-051-651	---	---
Thallium	Tl	HNO_3	✓ ⑧	140-051-811	140-051-812	140-051-815
Thorium	Th	HNO_3	✓ ⑧	140-051-901	---	---
Thulium	Tm	HNO_3	✓ ⑧	140-051-691	---	---
Tin	Sn	HCl	✓ ⑧	140-052-501	140-052-502	140-052-505
Titanium	Ti	H_20/tr. HF		140-050-221	140-050-222	140-050-225
Tungsten	W	H_20		140-050-741	140-050-742	140-050-745
Uranium	U	HNO_3	✓ ⑧	140-051-921	---	---
Vanadium	V	HNO_3	✓ ⑧	140-051-231	140-051-232	140-051-235
Ytterbium	Yb	HNO_3	✓ ⑧	140-051-701	---	---
Yttrium	Y	HNO_3	✓ ⑧	140-051-391	140-051-392	140-051-395
Zinc	Zn	HNO_3	✓ ⑧	140-051-301	140-051-302	140-051-305
Zirconium	Zr	HNO_3	✓ ⑧	140-051-401	140-051-402	140-051-405

** Osmium (OS) has an expiry date of 12 months opened and 15 months unopened*

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
- Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Single Element Standards
10 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number 125 ml	250 ml 10 000 µg/ml	500 ml
Aluminum	Al	HNO_3	✓ ⑧	140-061-131	140-061-132	140-061-135
Aluminum	Al	HCl	✓ ⑧	140-062-131	140-062-132	140-062-135
Antimony	Sb	HNO_3*	✓ ⑧	140-061-511	140-061-512	140-061-515
Arsenic	As	HNO_3	✓ ⑧	140-061-331	140-061-332	140-061-335
Barium	Ba	HNO_3	✓ ⑧	140-061-561	140-061-562	140-061-565
Beryllium	Be	HNO_3	✓ ⑧	140-061-041	140-061-042	140-061-045
Bismuth	Bi	HNO_3	✓ ⑧	140-061-831	140-061-832	140-061-835
Boron	B	H_20		140-060-051	140-060-052	140-060-055
Cadmium	Cd	HNO_3	✓ ⑧	140-061-481	140-061-482	140-061-485
Calcium	Ca	HNO_3	✓ ⑧	140-061-201	140-061-202	140-061-205
Cerium	Ce	HNO_3	✓ ⑧	140-061-581	---	---
Cesium	Cs	HNO_3	✓ ⑧	140-061-551	---	---
Chromium	Cr	HNO_3	✓ ⑧	140-061-241	140-061-242	140-061-245
Chromium	Cr	HCl	✓ ⑧	140-062-241	140-062-242	140-062-245
Cobalt	Co	HNO_3	✓ ⑧	140-061-271	140-061-272	140-061-275
Copper	Cu	HNO_3	✓ ⑧	140-061-291	140-061-292	140-061-295
Dysprosium	Dy	HNO_3	✓ ⑧	140-061-661	---	---
Erbium	Er	HNO_3	✓ ⑧	140-061-681	---	---
Europium	Eu	HNO_3	✓ ⑧	140-061-631	---	---
Gadolinium	Gd	HNO_3	✓ ⑧	140-061-641	---	---
Gallium	Ga	HNO_3	✓ ⑧	140-061-311	140-061-312	140-061-315
Germanium	Ge	H_20		140-060-321	---	---
Gold	Au	HCl	✓ ⑧	140-062-791	140-062-792	140-062-795
Hafnium	Hf	HCl	✓ ⑧	140-062-721	---	---
Holmium	Ho	HNO_3	✓ ⑧	140-061-671	---	---
Indium	In	HNO_3	✓ ⑧	140-061-491	---	---
Iridium	Ir	HCl	✓ ⑧	140-062-771	---	---
Iron	Fe	HNO_3	✓ ⑧	140-061-261	140-061-262	140-061-265
Lanthanum	La	HNO_3	✓ ⑧	140-061-571	---	---
Lead	Pb	HNO_3	✓ ⑧	140-061-821	140-061-822	140-061-825
Lithium	Li	HNO_3	✓ ⑧	140-061-031	140-061-032	140-061-035
Magnesium	Mg	HNO_3	✓ ⑧	140-061-121	140-061-122	140-061-125
Manganese	Mn	HNO_3	✓ ⑧	140-061-251	140-061-252	140-061-255
Mercury	Hg	HNO_3	✓ ⑧	140-061-801	140-061-802	140-061-805
Molybdenum	Mo	H_20		140-060-421	140-060-422	140-060-425
Neodymium	Nd	HNO_3	✓ ⑧	140-061-601	---	---
Nickel	Ni	HNO_3	✓ ⑧	140-061-281	140-061-282	140-061-285
Niobium	Nb	HF	✓ ⑧	140-060-411	---	---
Palladium	Pd	HCl	✓ ⑧	140-062-461	140-062-462	140-062-465
Phosphorus	P	H_20		140-060-151	140-060-152	140-060-155
Potassium	K	HNO_3	✓ ⑧	140-061-191	140-061-192	140-061-195
Praseodymium	Pr	HNO_3	✓ ⑧	140-061-591	---	---

** Traces of tartaric acid*

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
- Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

"Use soft words and hard arguments." **-English Proverb-**

Single Element Standards
10 000 µg/ml

Element	Symbol	Matrix	Code	Catalog Number 125 ml	250 ml 10 000 µg/ml	500 ml
Rhodium	Rh	HCl	✓ ⑧	140-062-451	---	---
Rubidium	Rb	HNO_3	✓ ⑧	140-061-371	---	---
Ruthenium	Ru	HCl	✓ ⑧	140-062-441	---	---
Samarium	Sm	HNO_3	✓ ⑧	140-061-621	---	---
Scandium	Sc	HNO_3	✓ ⑧	140-061-211	140-061-212	140-061-215
Selenium	Se	HNO_3	✓ ⑧	140-061-341	140-061-342	140-061-345
Silicon	Si	H_20/tr. HF		140-060-141	140-060-142	140-060-145
Silver	Ag	HNO_3	✓ ⑧	140-061-471	140-061-472	140-061-475
Sodium	Na	HNO_3	✓ ⑧	140-061-111	140-061-112	140-061-115
Strontium	Sr	HNO_3	✓ ⑧	140-061-381	140-061-382	140-061-385
Sulfur	S	H_20		140-060-161	140-060-162	140-060-165
Tantalum	Ta	HF	✓ ⑧	140-060-731	---	---
Tellurium	Te	HCl	✓ ⑧	140-062-521	---	---
Terbium	Tb	HNO_3	✓ ⑧	140-061-651	---	---
Thallium	Tl	HNO_3	✓ ⑧	140-061-811	140-061-812	140-061-815
Thorium	Th	HNO_3	✓ ⑧	140-061-901	---	---
Thulium	Tm	HNO_3	✓ ⑧	140-061-691	---	---
Tin	Sn	HCl	✓ ⑧	140-062-501	140-062-502	140-062-505
Titanium	Ti	H_20/tr. HF		140-060-221	140-060-222	140-060-225
Uranium	U	HNO_3	✓ ⑧	140-061-921	---	---
Vanadium*	V	HNO_3	✓ ⑧	140-061-231	140-061-232	140-061-235
Ytterbium	Yb	HNO_3	✓ ⑧	140-061-701	---	---
Yttrium	Y	HNO_3	✓ ⑧	140-061-391	140-061-392	140-061-395
Zinc	Zn	HNO_3	✓ ⑧	140-061-301	140-061-302	140-061-305
Zirconium	Zr	HNO_3	✓ ⑧	140-061-401	140-061-402	140-061-405

** Vanadium (V) has an expiry date of 12 months opened and 15 months unopened*

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
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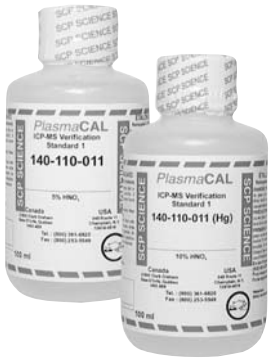
- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

*Plasma***CAL** Multi-Element Standards for Environmental Protection Agency (EPA) & the Contract Laboratory Program (CLP) provide an economical alternative to preparing in-house multi-element standards. Available for a range of prescribed methods and in multiple volumes.



- Designed specifically for EPA 200.7, 200.8, 6010 and Superfund CLP
  - Save money and time in preparation
- Available in 2 or 3 sizes (100, 250 & 500 ml)
  - Save by buying only what is required
- Complete Certificates of Analysis listing actual concentrations and traceability to NIST
  - Complete documentation for audit purposes

* ***Note***: *Some manufacturers may list the same Multi-Element Standard with different element concentrations. Ask your Representative or local distributor about our Custom Multi-Element Standards where most combinations of elements and concentrations are possible.*

Quality Control Standards

Quality Control Standard 1 (QC 19)

Element	Concentration
Sb	100 µg/ml
As	100 µg/ml
Be	100 µg/ml
Cd	100 µg/ml
Ca	100 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Ni	100 µg/ml
Se	100 µg/ml
Tl	100 µg/ml
Ti	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-102-011	✓ ⑧	100 ml
140-102-012	✓ ⑧	250 ml
140-102-015	✓ ⑧	500 ml

Quality Control Standard 2 (QC 7)

Element	Concentration
Al	100 µg/ml
Ba	100 µg/ml
B	100 µg/ml
K	1000 µg/ml
Si	50 µg/ml
Ag	100 µg/ml
Na	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-102-021	✓ ⑧	100 ml
140-102-022	✓ ⑧	250 ml
140-102-025	✓ ⑧	500 ml

Quality Control Set

(includes one of QC-1 & QC-2)

Catalog Number	Code	Volume
140-102-031	✓ ⑧	100 ml
140-102-032	✓ ⑧	250 ml
140-102-035	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Quality Control Standard 3 (QC 21)

Element	Concentration
Sb	100 µg/ml
As	100 µg/ml
Be	100 µg/ml
Cd	100 µg/ml
Ca	100 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Li	100 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Nit	100 µg/ml
Se	100 µg/ml
Sr	100 µg/ml
Tl	100 µg/ml
Ti	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-102-051	✓ ⑧	100 ml
140-102-052	✓ ⑧	250 ml
140-102-055	✓ ⑧	500 ml

Quality Control Standard 4 (QC 26)

Element	Concentration
Al	100 µg/ml
Sb	100 µg/ml
As	100 µg/ml
B	100 µg/ml
Ba	100 µg/ml
Be	100 µg/ml
Ca	100 µg/ml
Cd	100 µg/ml
Co	100 µg/ml
Cr	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
K	1000 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Mo	100 µg/ml
Na	100 µg/ml
Ni	100 µg/ml
Pb	100 µg/ml
Ag	100 µg/ml
Se	100 µg/ml
Si	50 µg/ml
Ti	100 µg/ml
Tl	100 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-102-041	✓ ⑧	100 ml
140-102-042	✓ ⑧	250 ml
140-102-045	✓ ⑧	500 ml

EPA 200.7 Mixed Calibration Standards

Mixed Calibration Standard 1

Solution A

Element	Concentration
Ag	50 µg/ml
B	200 µg/ml
Ba	100 µg/ml
Ca	1000 µg/ml
Cd	200 µg/ml
Cu	200 µg/ml
Mn	200 µg/ml
Sb	500 µg/ml
Se	500 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-120-011	✓ ⑧	100 ml
141-120-015	✓ ⑧	500 ml

Solution B

Element	Concentration
As	1000 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
140-051-331	✓ ⑧	100 ml
140-051-335	✓ ⑧	500 ml

Solution A & B Set

Catalog Number	Code	Volume
140-120-011	✓ ⑧	100 ml
140-120-015	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Mixed Calibration Standard 2

Element	Concentration
K	2000 µg/ml
Li	500 µg/ml
Mo	1000 µg/ml
Na	1000 µg/ml
Sr	100 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
140-120-021	✓ ⑧	100 ml
140-120-025	✓ ⑧	500 ml

Mixed Calibration Standard 3

Element	Concentration
Co	200 µg/ml
V	200 µg/ml
P	1000 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
140-120-031	✓ ⑧	100 ml
140-120-035	✓ ⑧	500 ml

Mixed Calibration Standard 4

Solution A

Element	Concentration
Al	1000 µg/ml
Cr	500 µg/ml
Hg	200 µg/ml
Zn	500 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-120-041	✓ ⑧	100 ml
141-120-045	✓ ⑧	500 ml

Solution B

Element	Concentration
Sn	400 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-120-141	✓ ⑧	100 ml
141-120-145	✓ ⑧	500 ml

Solution C

Element	Concentration
Si	1000 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
140-050-141	✓ ⑧	100 ml
140-050-145	✓ ⑧	500 ml

Solution A, B & C Set

Catalog Number	Code	Volume
140-120-041	✓ ⑧	100 ml
140-120-045	✓ ⑧	500 ml

Mixed Calibration Standard 5

Element	Concentration
Be	100 µg/ml
Fe	1000 µg/ml
Mg	1000 µg/ml
Ni	200 µg/ml
Pb	1000 µg/ml
Tl	500 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
140-120-051	✓ ⑧	100 ml
140-120-055	✓ ⑧	500 ml

Mixed Calibration Set

(includes one of each standard)

Catalog Number	Code	Volume
140-120-061	✓ ⑧	100 ml
140-120-065	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
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- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

ICP-MS Verification Standards

ICP-MS Verification Standard 1

Solution A

Element	Concentration
Al	10 µg/ml
As	10 µg/ml
Ba	10 µg/ml
Be	10 µg/ml
Bi	10 µg/ml
Ca	10 µg/ml
Cd	10 µg/ml
Cr	10 µg/ml
Co	10 µg/ml
Cu	10 µg/ml
Fe	10 µg/ml
Ga	10 µg/ml
Pb	10 µg/ml
Li	10 µg/ml
Mg	10 µg/ml
Mn	10 µg/ml
Ni	10 µg/ml
K	10 µg/ml
Se	10 µg/ml
Ag	10 µg/ml
Na	10 µg/ml
Sr	10 µg/ml
Tl	10 µg/ml
V	10 µg/ml
Zn	10 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
141-110-011	✓ ⑧	100 ml
141-110-012	✓ ⑧	250 ml
141-110-015	✓ ⑧	500 ml

Solution B

Element	Concentration
Hg	10 µg/ml

Matrix: 10% HNO_3

Catalog Number	Code	Volume
141-110-111	✓ ⑧	100 ml
141-110-112	✓ ⑧	250 ml
141-110-115	✓ ⑧	500 ml

Solution A & B Set

Catalog Number	Code	Volume
140-110-011	✓ ⑧	100 ml
140-110-012	✓ ⑧	250 ml
140-110-015	✓ ⑧	500 ml

ICP-MS Verification Standard 2

Element	Concentration
B	10 µg/ml
Mo	10 µg/ml
S	10 µg/ml
Si	10 µg/ml
Tl	10 µg/ml
W	10 µg/ml

Matrix: 1% HF

Catalog Number	Code	Volume
140-110-021	✓ ⑧	100 ml
140-110-022	✓ ⑧	250 ml
140-110-025	✓ ⑧	500 ml

ICP-MS Verification Set

(includes one of each standard)

Catalog Number	Code	Volume
140-110-031	✓ ⑧	100 ml
140-110-032	✓ ⑧	250 ml
140-110-035	✓ ⑧	500 ml

ICP-MS Internal Standards

Element	Matrix	Concentration (µg/ml)	Code	Catalog Number 100 ml	250 ml	500 ml
Bismuth (Bi)	HNO_3	100	✓ ⑧	140-111-021	140-111-022	140-111-025
Holmium (Ho)	HNO_3	100	✓ ⑧	140-111-041	140-111-042	140-111-045
Indium (In)	HNO_3	100	✓ ⑧	140-111-051	140-111-052	140-111-055
Rhodium (Rh)	HCl	100	✓ ⑧	140-111-061	140-111-062	140-111-065
Scandium (Sc)	HNO_3	100	✓ ⑧	140-111-011	140-111-012	140-111-015
Terbium (Tb)	HNO_3	100	✓ ⑧	140-111-071	140-111-072	140-111-075
Yttrium (Y)	HNO_3	100	✓ ⑧	140-111-031	140-111-032	140-111-035

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Laboratory Performance Check Solution Set

Solution A

Element	Concentration
Ag	50 µg/ml
Al	200 µg/ml
As	200 µg/ml
B	200 µg/ml
Ba	200 µg/ml
Be	200 µg/ml
Ca	200 µg/ml
Cd	200 µg/ml
Co	200 µg/ml
Cr	200 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-123-011	✓ ⑧	100 ml
141-123-015	✓ ⑧	500 ml

Solution B

Element	Concentration
Cu	200 µg/ml
Fe	200 µg/ml
Hg	200 µg/ml
K	1000 µg/ml
Li	200 µg/ml
Mg	200 µg/ml
Mn	200 µg/ml
Mo	200 µg/ml
Na	200 µg/ml
Ni	200 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-123-021	✓ ⑧	100 ml
141-123-025	✓ ⑧	500 ml

Solution C

Element	Concentration
P	1000 µg/ml
Pb	200 µg/ml
Sb	200 µg/ml
Se	200 µg/ml
Si	1000 µg/ml
Sr	200 µg/ml
Tl	200 µg/ml
V	200 µg/ml
Zn	200 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 100

Catalog Number	Code	Volume
141-123-021	✓ ⑧	100 ml
141-123-025	✓ ⑧	500 ml

Solution D

Element	Concentration
Sn	200 µg/ml

Matrix: 20% HCl
Dilution: 1 to 100

Catalog Number	Code	Volume
141-123-041	✓ ⑧	100 ml
141-123-045	✓ ⑧	500 ml

Solution A, B, C & D Set

Catalog Number	Code	Volume
140-123-011	✓ ⑧	100 ml
140-123-015	✓ ⑧	500 ml

Plasma Solution

Element	Concentration
As	100 µg/ml
Pb	100 µg/ml
Se	100 µg/ml
Tl	100 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 10

Catalog Number	Code	Volume
140-121-011	✓ ⑧	100 ml
140-121-015	✓ ⑧	500 ml

Tuning Solution

Element	Concentration
Cu	100 µg/ml
Pb	100 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 10

Catalog Number	Code	Volume
140-122-011	✓ ⑧	100 ml
140-122-015	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

* as defined by :
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Multi-Element Calibration Standards

Calibration Std. 1

Element	Concentration
Be	50 µg/ml
Cd	150 µg/ml
Pb	500 µg/ml
Mn	100 µg/ml
Se	200 µg/ml
Zn	150 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-101-011	✓ ⑧	100 ml
140-101-012	✓ ⑧	250 ml
140-101-015	✓ ⑧	500 ml

Calibration Std. 2

Element	Concentration
Ba	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	1000 µg/ml
V	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-101-021	✓ ⑧	100 ml
140-101-022	✓ ⑧	250 ml
140-101-025	✓ ⑧	500 ml

Calibration Std. 3

Element	Concentration
As	500 µg/ml
Mo	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-101-031	✓ ⑧	100 ml
140-101-032	✓ ⑧	250 ml
140-101-035	✓ ⑧	500 ml

Calibration Std. 4

Element	Concentration
Al	200 µg/ml
Ca	1000 µg/ml
Cr	20 µg/ml
Ni	20 µg/ml
K	400 µg/ml
Na	200 µg/ml
Li	100 µg/ml
Sr	10 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-101-041	✓ ⑧	100 ml
140-101-042	✓ ⑧	250 ml
140-101-045	✓ ⑧	500 ml

Calibration Std. 5

Element	Concentration
Sb	200 µg/ml
Mg	1000 µg/ml
Ag	50 µg/ml
Tl	200 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-101-051	✓ ⑧	100 ml
140-101-052	✓ ⑧	250 ml
140-101-055	✓ ⑧	500 ml

Calibration Std. 6

Element	Concentration
P	200 µg/ml

Matrix: H_2O

Catalog Number	Code	Volume
140-101-071	✓ ⑧	100 ml
140-101-072	✓ ⑧	250 ml
140-101-075	✓ ⑧	500 ml

Calibration Std. Set

(Includes one of each standard)

Catalog Number	Code	Volume
140-101-061	✓ ⑧	100 ml
140-101-062	✓ ⑧	250 ml
140-101-065	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

CLP Instrument Calibration Standards

Calibration Std. 1

Element	Concentration
Ca	2500 µg/ml
Mg	2500 µg/ml
K	2500 µg/ml
Na	2500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-011	✓ ⑧	100 ml
140-114-015	✓ ⑧	500 ml

Calibration Std. 2

Element	Concentration
Ag	100 µg/ml
Cr	100 µg/ml
Mn	150 µg/ml
Ni	400 µg/ml
Zn	200 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-021	✓ ⑧	100 ml
140-114-025	✓ ⑧	500 ml

Calibration Std. 3

Element	Concentration
Al	2000 µg/ml
Ba	2000 µg/ml
Be	50 µg/ml
Co	500 µg/ml
Cu	250 µg/ml
Fe	1000 µg/ml
V	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-031	✓ ⑧	100 ml
140-114-035	✓ ⑧	500 ml

Calibration Std. 4

Element	Concentration
As	100 µg/ml
Cd	50 µg/ml
Pb	50 µg/ml
Se	50 µg/ml
Tl	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-041	✓ ⑧	100 ml
140-114-045	✓ ⑧	500 ml

Calibration Std. 5

Element	Concentration
Sb	600 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-051	✓ ⑧	100 ml
140-114-055	✓ ⑧	500 ml

Calibration Std. 6

Element	Concentration
Hg	100 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-114-061	✓ ⑧	100 ml
140-114-065	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Initial Calibration Verification I

Verification I Std. 1

Element	Concentration
Ba	100 µg/ml
Be	40 µg/ml
Cd	50 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Mn	100 µg/ml
Ni	100 µg/ml
Ag	20 µg/ml
Tl	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-115-011	✓ ⑧	100 ml
140-115-015	✓ ⑧	500 ml

Verification I Std. 2

Element	Concentration
Al	100 µg/ml
Sb	100 µg/ml
As	100 µg/ml
Ca	1000 µg/ml
Cr	100 µg/ml
Mg	1000 µg/ml
K	1000 µg/ml
Se	100 µg/ml
Na	1000 µg/ml
V	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-115-021	✓ ⑧	100 ml
140-115-025	✓ ⑧	500 ml

Initial Calibration Verification II

Verification II Std. 1

Element	Concentration
Ba	500 µg/ml
Be	200 µg/ml
Cd	250 µg/ml
Co	500 µg/ml
Cu	500 µg/ml
Fe	500 µg/ml
Pb	500 µg/ml
Mn	500 µg/ml
Ni	500 µg/ml
Ag	100 µg/ml
Tl	500 µg/ml
Zn	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-116-011	✓ ⑧	100 ml
140-116-015	✓ ⑧	500 ml

Verification II Std. 2 Solution A

Element	Concentration
Al	500 µg/ml
As	500 µg/ml
Cr	500 µg/ml
Se	500 µg/ml
V	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
141-116-021	✓ ⑧	100 ml
141-116-025	✓ ⑧	500 ml

Verification II Std. 2 Solution B

Element	Concentration
Sb	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
141-116-121	✓ ⑧	100 ml
141-116-125	✓ ⑧	500 ml

Verification II Std. 2 Solution A&B Set

Catalog Number	Code	Volume
140-116-021	✓ ⑧	100 ml
140-116-025	✓ ⑧	500 ml

Verification II Std. 3

Element	Concentration
Ca	2500 µg/ml
Mg	2500 µg/ml
K	2500 µg/ml
Na	2500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-114-011	✓ ⑧	100 ml
140-114-015	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Contract Required Quantitation Limits (CRQL)

Superfund CLP ICP-MS

Element	Concentration
Ag	10 µg/ml
As	10 µg/ml
Ba	100 µg/ml
Be	10 µg/ml
Cd	10 µg/ml
Co	10 µg/ml
Cr	20 µg/ml
Cu	20 µg/ml
Mn	10 µg/ml
Ni	10 µg/ml
Pb	10 µg/ml
Sb	20 µg/ml
Se	50 µg/ml
Tl	10 µg/ml
V	10 µg/ml
Zn	20 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-117-021	✓ ⑧	100 ml
140-117-025	✓ ⑧	500 ml

Superfund CLP ICP-OES

Element	Concentration
Al	200 µg/ml
As	10 µg/ml
Ba	200 µg/ml
Be	5 µg/ml
Ca	5000 µg/ml
Cd	5 µg/ml
Co	50 µg/ml
Cr	10 µg/ml
Cu	25 µg/ml
Fe	100 µg/ml
K	5000 µg/ml
Mg	5000 µg/ml
Mn	15 µg/ml
Ni	40 µg/ml
Pb	10 µg/ml
Sb	60 µg/ml
Se	35 µg/ml
Tl	25 µg/ml
V	50 µg/ml
Zn	60 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-117-031	✓ ⑧	100 ml
140-117-035	✓ ⑧	500 ml

Contract Required Detection Limits (CRDL)

Element	Concentration
Ag	10 µg/ml
Al	200 µg/ml
As	15 µg/ml
Ba	200 µg/ml
Be	5 µg/ml
Ca	5000 µg/ml
Cd	5 µg/ml
Co	50 µg/ml
Cr	10 µg/ml
Cu	25 µg/ml
Fe	100 µg/ml
K	5000 µg/ml
Li	50 µg/ml
Mg	5000 µg/ml
Mn	15 µg/ml
Na	5000 µg/ml
Ni	40 µg/ml
Pb	10 µg/ml
Se	35 µg/ml
Sr	50 µg/ml
Tl	25 µg/ml
V	50 µg/ml
Zn	60 µg/ml

Matrix: 10% HNO_3

Catalog Number	Code	Volume
140-117-041	✓ ⑧	100 ml
140-117-045	✓ ⑧	500 ml

Interference Checks

Interferents A

Element	Concentration
Al	2500 µg/ml
Ca	2500 µg/ml
Fe	1000 µg/ml
Mg	2500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-118-011	✓ ⑧	100 ml
140-118-015	✓ ⑧	500 ml

Alternate Interferents A

Element	Concentration
Cr	1000 µg/ml
Cu	1000 µg/ml
Mn	1000 µg/ml
Ni	1000 µg/ml
Ti	1000 µg/ml
V	1000 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-118-031	✓ ⑧	100 ml
140-118-035	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

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Interferents B

Element	Concentration
Ag	100 µg/ml
Ba	50 µg/ml
Be	50 µg/ml
Cd	100 µg/ml
Co	50 µg/ml
Cr	50 µg/ml
Cu	50 µg/ml
Mn	50 µg/ml
Ni	100 µg/ml
Pb	100 µg/ml
V	50 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-118-021	✓ ⑧	100 ml
140-118-025	✓ ⑧	500 ml

Alternate Interferents B

Element	Concentration
Al	100 µg/ml
As	100 µg/ml
B	100 µg/ml
Ca	10 µg/ml
Fe	10 µg/ml
Mg	10 µg/ml
Mo	100 µg/ml
Na	100 µg/ml
Sb	100 µg/ml
Se	100 µg/ml
Si	10 µg/ml
Tl	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-118-041	✓ ⑧	100 ml
140-118-045	✓ ⑧	500 ml

Interference Standards

Interference Std. 1

Element	Concentration
As	100 µg/ml
Ba	30 µg/ml
Be	10 µg/ml
Cd	30 µg/ml
Cr	30 µg/ml
Co	30 µg/ml
Cu	30 µg/ml
Pb	100 µg/ml
Mn	20 µg/ml
Hg	5 µg/ml
Ni	30 µg/ml
K	2000 µg/ml
Se	50 µg/ml
Ag	30 µg/ml
Tl	100 µg/ml
V	30 µg/ml
Zn	30 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-104-011	✓ ⑧	100 ml
140-104-012	✓ ⑧	250 ml
140-104-015	✓ ⑧	500 ml

Interference Std. 2

Element	Concentration
Sb	1000 µg/ml

Matrix: 4% HNO_3

Catalog Number	Code	Volume
140-104-021	✓ ⑧	100 ml
140-104-022	✓ ⑧	250 ml
140-104-025	✓ ⑧	500 ml

Interference Std. 3

Element	Concentration
B	500 µg/ml
Mo	300 µg/ml
Si	250 µg/ml
Ti	1000 µg/ml

Matrix: 1% HF

Catalog Number	Code	Volume
140-104-031	✓ ⑧	100 ml
140-104-032	✓ ⑧	250 ml
140-104-035	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Interference Std. 4

Element	Concentration
Al	400 µg/ml
Ca	2000 µg/ml
Fe	2000 µg/ml
Mg	1000 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-104-041	✓ ⑧	100 ml
140-104-042	✓ ⑧	250 ml
140-104-045	✓ ⑧	500 ml

Interference Std. 5

Element	Concentration
Na	5000 µg/ml

Matrix: 4% HNO_3

Catalog Number	Code	Volume
140-104-051	✓ ⑧	100 ml
140-104-052	✓ ⑧	250 ml
140-104-055	✓ ⑧	500 ml

Interference Std. 5
(Includes one of each standard)

Catalog Number	Code	Volume
140-104-061	✓ ⑧	100 ml
140-104-062	✓ ⑧	250 ml
140-104-065	✓ ⑧	500 ml

Spectral Interference Checks

SIC I

Element	Concentration
Mo	500 µg/ml

Matrix: H_2O
Dilution: 1 to 10

Catalog Number	Code	Volume
140-124-011	✓ ⑧	100 ml
140-124-015	✓ ⑧	500 ml

SIC II

Element	Concentration
Co	100 µg/ml
Cr	200 µg/ml
Mn	200 µg/ml
V	200 µg/ml
Cu	400 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 10

Catalog Number	Code	Volume
140-124-021	✓ ⑧	100 ml
140-124-025	✓ ⑧	500 ml

SIC III

Element	Concentration
Ni	200 µg/ml
Al	300 µg/ml
Fe	1500 µg/ml

Matrix: 5% HNO_3
Dilution: 1 to 10

Catalog Number	Code	Volume
140-124-031	✓ ⑧	100 ml
140-124-035	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

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Instrument Wavelength Standards

Instrument Std. 1

Element	Concentration
Al	10 µg/ml
Ba	1 µg/ml
Be	1 µg/ml
B	10 µg/ml
Ca	1 µg/ml
Ni	10 µg/ml
P	100 µg/ml
Sc	1 µg/ml
Zn	10 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-011	✓ ⑧	100 ml
140-103-012	✓ ⑧	250 ml
140-103-015	✓ ⑧	500 ml

Instrument Std. 2

Element	Concentration
Ba	50 µg/ml
Be	20 µg/ml
Mn	20 µg/ml
Ni	20 µg/ml
Sc	20 µg/ml
Zn	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-021	✓ ⑧	100 ml
140-103-022	✓ ⑧	250 ml
140-103-025	✓ ⑧	500 ml

Instrument Std. 3

Element	Concentration
As	20 µg/ml
Li	20 µg/ml
Mn	20 µg/ml
Mo	20 µg/ml
Ni	20 µg/ml
P	100 µg/ml
K	100 µg/ml
Sc	20 µg/ml
Na	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-031	✓ ⑧	100 ml
140-103-032	✓ ⑧	250 ml
140-103-035	✓ ⑧	500 ml

Instrument Std. 4

Element	Concentration
Al	10 µg/ml
As	10 µg/ml
Ba	1 µg/ml
Cu	10 µg/ml
Pb	10 µg/ml
Mn	10 µg/ml
Ni	10 µg/ml
P	10 µg/ml
K	50 µg/ml
Sc	10 µg/ml
Na	10 µg/ml
Zn	10 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-041	✓ ⑧	100 ml
140-103-042	✓ ⑧	250 ml
140-103-045	✓ ⑧	500 ml

Instrument Std. 5

Element	Concentration
Al	100 µg/ml
As	100 µg/ml
Cd	100 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Mg	100 µg/ml
Mn	100 µg/ml
Ni	100 µg/ml
K	100 µg/ml
Na	100 µg/ml
Zn	100 µg/ml
Y	600 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-051	✓ ⑧	100 ml
140-103-052	✓ ⑧	250 ml
140-103-055	✓ ⑧	500 ml

Instrument Std. 6

Element	Concentration
Al	50 µg/ml
As	50 µg/ml
Cr	50 µg/ml
Co	50 µg/ml
Cu	50 µg/ml
Pb	50 µg/ml
P	50 µg/ml
K	50 µg/ml
Na	50 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-061	✓ ⑧	100 ml
140-103-062	✓ ⑧	250 ml
140-103-065	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
- Hazardous Materials Regulations of the U.S. Department of Transportation, Tariff No. BOE-6000-R
- Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
- International Air Transport Association - Dangerous Goods Regulation, 40th Edition

Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Instrument Std. 7

Element	Concentration
Al	50 µg/ml
Ba	50 µg/ml
Cd	50 µg/ml
Cu	50 µg/ml
Mn	50 µg/ml
K	500 µg/ml
Zn	50 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-103-071	✓ ⑧	100 ml
140-103-072	✓ ⑧	250 ml
140-103-075	✓ ⑧	500 ml

Spike Sample Analysis

Spike Sample Std. 1

Element	Concentration
Al	200 µg/ml
Sb	50 µg/ml
As	200 µg/ml
Ba	200 µg/ml
Be	5 µg/ml
Cd	5 µg/ml
Cr	20 µg/ml
Co	50 µg/ml
Cu	25 µg/ml
Fe	100 µg/ml
Pb	50 µg/ml
Mn	50 µg/ml
Ni	50 µg/ml
Se	200 µg/ml
Ag	5 µg/ml
Tl	200 µg/ml
V	50 µg/ml
Zn	55 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-119-011	✓ ⑧	100 ml
140-119-015	✓ ⑧	500 ml

Spike Sample Std. 2A (Water)

Element	Concentration
Al	2000 µg/ml
Ba	2000 µg/ml
Be	50 µg/ml
Cr	200 µg/ml
Co	500 µg/ml
Cu	250 µg/ml
Fe	1000 µg/ml
Mn	500 µg/ml
Ni	500 µg/ml
Ag	50 µg/ml
V	500 µg/ml
Zn	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-119-021	✓ ⑧	100 ml
140-119-025	✓ ⑧	500 ml

Spike Sample Std. 2B (Water)

Element	Concentration
Sb	500 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-119-031	✓ ⑧	100 ml
140-119-035	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Spike Sample Std. 2C (Water)

Element	Concentration
As	2000 µg/ml
Cd	50 µg/ml
Pb	500 µg/ml
Se	2000 µg/ml
Tl	2000 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-119-041	✓ ⑧	100 ml
140-119-045	✓ ⑧	500 ml

Spike Sample Std. 3 (Soil)

Element	Concentration
Sb	100 µg/ml
As	400 µg/ml
Ba	400 µg/ml
Be	10 µg/ml
Cd	10 µg/ml
Cr	40 µg/ml
Co	100 µg/ml
Cu	50 µg/ml
Pb	100 µg/ml
Mn	100 µg/ml
Ni	100 µg/ml
Se	400 µg/ml
Ag	10 µg/ml
Tl	400 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-119-051	✓ ⑧	100 ml
140-119-055	✓ ⑧	500 ml

Groundwater & Wastewater (Trace Metals) Standards

Trace Metals I

Element	Concentration
Al	500 µg/ml
As	100 µg/ml
Be	100 µg/ml
Cd	25 µg/ml
Cr	100 µg/ml
Co	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
Pb	100 µg/ml
Mn	100 µg/ml
Hg	5 µg/ml
Ni	100 µg/ml
Se	25 µg/ml
V	250 µg/ml
Zn	100 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-106-011	✓ ⑧	100 ml
140-106-012	✓ ⑧	250 ml
140-106-015	✓ ⑧	500 ml

Trace Metals II

Element	Concentration
Sb	20 µg/ml
Ag	10 µg/ml
Tl	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-106-021	✓ ⑧	100 ml
140-106-022	✓ ⑧	250 ml
140-106-025	✓ ⑧	500 ml

Trace Metals III

Element	Concentration
Ba	500 µg/ml
Ca	500 µg/ml
Mg	100 µg/ml
Mo	500 µg/ml
K	100 µg/ml
Na	500 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-106-031	✓ ⑧	100 ml
140-106-032	✓ ⑧	250 ml
140-106-035	✓ ⑧	500 ml

Trace Metals Set

(Includes one of each standard)

Catalog Number	Code	Volume
140-106-041	✓ ⑧	100 ml
140-106-042	✓ ⑧	250 ml
140-106-045	✓ ⑧	500 ml

⊗ Glass Container *⑥ Poison* *③ Flammable*
*✓ Dangerous Goods** *⑧ Corrosive* *⑤ Oxidant*

* as defined by :
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Multi-Element ICP-AES & MS Calibration Standards for U.S. EPA Methods & CLP Programs

Water & Wastewater (Alternate Metals) Standards

Alternate Metals I

Element	Concentration
Al	20 µg/ml
Sb	5 µg/ml
Be	5 µg/ml
Co	10 µg/ml
Cu	10 µg/ml
Fe	20 µg/ml
Mn	10 µg/ml
Ni	10 µg/ml
Tl	5 µg/ml
V	20 µg/ml
Zn	10 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-107-011	✓ ⑧	100 ml
140-107-012	✓ ⑧	250 ml
140-107-015	✓ ⑧	500 ml

Alternate Metals II

Element	Concentration
Ca	500 µg/ml
Mg	100 µg/ml
K	100 µg/ml
Na	500 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-107-021	✓ ⑧	100 ml
140-107-022	✓ ⑧	250 ml
140-107-025	✓ ⑧	500 ml

Alternate Metals Set
(Includes one of each standard)

Catalog Number	Code	Volume
140-107-031	✓ ⑧	100 ml
140-107-032	✓ ⑧	250 ml
140-107-035	✓ ⑧	500 ml

Drinking Water Standards

Primary Drinking Water Metals

Solution A

Element	Concentration
As	10 µg/ml
Ba	100 µg/ml
Cd	5 µg/ml
Cr	10 µg/ml
Pb	10 µg/ml
Se	5 µg/ml
Ag	10 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
141-105-011	✓ ⑧	100 ml
141-105-012	✓ ⑧	250 ml
141-105-015	✓ ⑧	500 ml

Solution B

Element	Concentration
Hg	10 µg/ml

Matrix: 10% HNO_3

Catalog Number	Code	Volume
141-105-111	✓ ⑧	100 ml
141-105-112	✓ ⑧	250 ml
141-105-115	✓ ⑧	500 ml

Solution A & B Set

Catalog Number	Code	Volume
140-105-011	✓ ⑧	100 ml
140-105-012	✓ ⑧	250 ml
140-105-015	✓ ⑧	500 ml

Secondary Drinking Water Metals

Element	Concentration
Cu	100 µg/ml
Fe	30 µg/ml
Mn	5 µg/ml
Zn	500 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
141-105-021	✓ ⑧	100 ml
141-105-022	✓ ⑧	250 ml
141-105-025	✓ ⑧	500 ml

Drinking Water Sets (Primary & Secondary)

Catalog Number	Code	Volume
140-105-031	✓ ⑧	100 ml
140-105-032	✓ ⑧	250 ml
140-105-035	✓ ⑧	500 ml

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Toxicity Characteristic Leachate Procedure (TCLP) Standards

TCLP Std.

Element	Concentration
As	25 µg/ml
Ba	500 µg/ml
Cd	5 µg/ml
Cr	25 µg/ml
Pb	25 µg/ml
Se	5 µg/ml
Ag	25 µg/ml

Matrix: 5% HNO_3

Catalog Number	Code	Volume
140-112-011	✓ ⑧	100 ml
140-112-012	✓ ⑧	250 ml
140-112-015	✓ ⑧	500 ml

TCLP Mercury Std.

Element	Concentration
Hg	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Code	Volume
140-112-041	✓ ⑧	100 ml
140-112-042	✓ ⑧	250 ml
140-112-045	✓ ⑧	500 ml

Matrix Blanks

Matrix	Code	Catalog Number		
		100 ml	250 ml	500 ml
HNO_3 5% $^{v}/_{v}$	✓ ⑧	140-113-011	140-113-012	140-113-015
HCl 5% $^{v}/_{v}$	✓ ⑧	140-113-021	140-113-022	140-113-025
H_2O (ASTM Type I)		140-113-031	140-113-032	140-113-035

⊗ *Glass Container*
✓ *Dangerous Goods**
⑥ *Poison*
⑧ *Corrosive*
③ *Flammable*
⑤ *Oxidant*

* as defined by :
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Did you get your 10-Pak?

- The 10-PAK of ICP-AES/MS Standards is a cost effective solution for your calibration standard requirements. Save over 10% with every order of ten 1000 µg/ml standards
- The following elements are excluded from all special offers: Au, Ir, Lu, Os, Pd, Pt, Re, Rh, Ru, Sc, & Tm

Instrument Calibration Standards

Wavecal Standard I for PE 40, 400, 1000, & 2000

Element	Concentration
Al	20 µg/ml
K	100 µg/ml
La	20 µg/ml
Li	20 µg/ml
Mn	20 µg/ml
Mo	20 µg/ml
Na	20 µg/ml
Ni	20 µg/ml
P	100 µg/ml
S	100 µg/ml
Sc	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Volume	Code
140-128-111	100 ml	✓ ⑧
140-128-112	250 ml	✓ ⑧
140-128-115	500 ml	✓ ⑧

Wavecal Standard II for PE 6000, 6500(XR)

Element	Concentration
Ba	50 µg/ml
Be	20 µg/ml
La	20 µg/ml
Mn	20 µg/ml
Ni	20 µg/ml
Sc	20 µg/ml
Zn	20 µg/ml

Matrix: 2% HNO_3

Catalog Number	Volume	Code
140-128-141	100 ml	✓ ⑧
140-128-142	250 ml	✓ ⑧
140-128-145	500 ml	✓ ⑧

Wavecal Standard III for Optima 3000 Vista

Element	Concentration
Ba	1 µg/ml
Ca	1 µg/ml
K	50 µg/ml
La	10 µg/ml
Li	10 µg/ml
Mn	10 µg/ml
Na	10 µg/ml
Sr	10 µg/ml

Matrix: 2% HNO_3

Catalog Number	Volume	Code
140-128-231	100 ml	✓ ⑧
140-128-232	250 ml	✓ ⑧
140-128-235	500 ml	✓ ⑧

Reprofiling Solution for Spectro CIROS

Element	Concentration
Fe	10 µg/ml
K	10 µg/ml
La	10 µg/ml
Mg	5 µg/ml
Mn	5 µg/ml
P	10 µg/ml
S	50 µg/ml
Sc	10 µg/ml
Ti	10 µg/ml

Matrix: 5% HCl / 2% HNO_3

Catalog Number	Volume	Code
140-128-201	100 ml	✓ ⑧
140-128-202	250 ml	✓ ⑧
140-128-205	500 ml	✓ ⑧

SCP-12-AES for Thermo IRIS Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
100ppm	✓ ⑧	140-130-311	140-130-315

Matrix: 5% HNO_3
Element Blend Containing: Al, As, Ba, Cd, Cu, K, Mn, Pb, S, Se, Tl, Zn

***Note: Ba = 10ppm**

SCP-14-AES for Varian Vista Tuning Solution

Concentration	Code	Catalog Number	
		125 ml	500 ml
50ppm	✓ ⑧	140-130-341	140-130-345

Matrix: 5% HNO_3
Element Blend Containing: Al, As, Ba, Cd, Co, Cr, Mn, Mo, Ni, Pb, Se, Sr, Zn, K*

***Note: K = 500ppm**

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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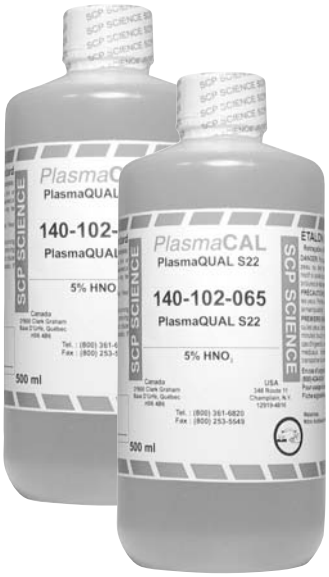
*Plasma*QUAL S22

Element	Concentration
Al	100 µg/ml
As	1000 µg/ml
Ba	10 µg/ml
Ca	10 µg/ml
Cd	100 µg/ml
Co	100 µg/ml
Cr	100 µg/ml
Cu	100 µg/ml
Fe	100 µg/ml
K	1000 µg/ml
Li	10 µg/ml
Mg	10 µg/ml
Mn	100 µg/ml
Na	100 µg/ml
Ni	100 µg/ml
Pb	100 µg/ml
Se	1000 µg/ml
Sr	10 µg/ml
Ti	10 µg/ml
Tl	1000 µg/ml
V	100 µg/ml
Zn	100 µg/ml

Catalog Number	Volume	Code
140-102-061	100 ml	✓ ⑧
140-102-062	250 ml	✓ ⑧
140-102-065	500 ml	✓ ⑧



SCP-28-AES for Thermo ICP-AES

Concentration	Code	Catalog Number 125 ml	Catalog Number 500 ml
100ppm	✓ ⑧	140-130-301	140-130-305

Matrix: 5% HNO_3
Element Blend Containing: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Sb, Se, Sr, Ti, Tl, V, Zn

SCP-11-MS for Thermo and PE ICP-MS

Concentration	Code	Catalog Number 125 ml	Catalog Number 500 ml
10ppm	✓ ⑧	140-130-331	140-331-335

Matrix: 5% HNO_3
Element Blend Containing: Ba, Be, Ce, Co, In, K, Li, Mg, Pb, Rh, U

SCP-33-MS for Thermo and PE ICP-MS

Concentration	Code	Catalog Number 125 ml	Catalog Number 500 ml
10ppm	✓ ⑧	140-130-321	140-130-325

Matrix: 5% HNO_3
Element Blend Containing: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Ni, Pb, Rb, Sb, Se, Sn, Sr, Ti, Tl, U, V, Zn

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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- Canadian Transportation of Dangerous Goods Act and Regulations, Revision December 2000
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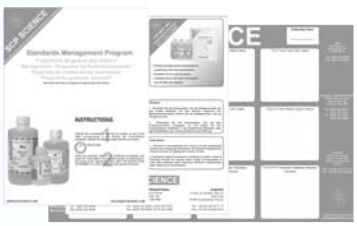
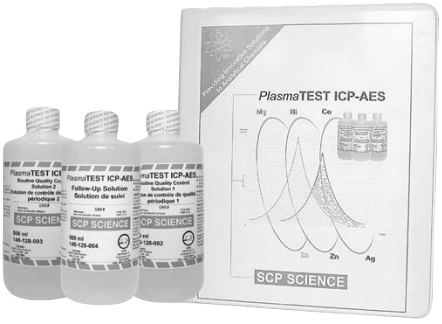
Free Standards Management Program

- Accurately track the expiry dates of your standards
- An invaluable tool when compliance auditing of standards is required



Instrument Control Kits
*Plasma*TEST ICP-AES

The *Plasma***TEST ICP-AES** kit contains the necessary solutions and documentation required to continually monitor multiple parameters for one or more ICP spectrometers. A comprehensive logbook provides a full description for each test procedure, data tables and charts for recording of results, and criteria for interpretation of results. Replacement solutions are available separately.



- Warm-up time
  - Optimum analysis scheduling
- Long-term stability
  - Minimize frequency of re-standardization
- Resolution
  - Minimize spectral interferences
- Plasma Robustness
  - Monitor sensitivity to different matrices
- Signal/Noise Ratio
  - Optimize detection limits
- Repeatability
  - Monitor stability
- Raw Count
  - Monitor repeatability

Ordering Information

Description	Code	Catalog Number
*Plasma***TEST for ICP-AES Kit (English)**	✓ ⑧	140-128-001
*Plasma***TEST for ICP-AES Kit (French)**	✓ ⑧	140-128-011

Re-ordering Information

Description	Code	Catalog Number
RQC-1 Solution	✓ ⑧	140-128-002
RQC-2 Solution	✓ ⑧	140-128-003
Follow-Up Solution	✓ ⑧	140-128-004
Log Book (English)		140-128-005
Log Book (French)		140-128-015

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Instrument Control Kits
*Plasma*TEST ICP-MS

The *Plasma***TEST ICP-MS** kit ensures maximum operation efficiency for your ICP-MS Mass Spectrometer. The Total Quality Kit includes testing schedules, control charts, and all required solutions.

- Isotopic Ratio
  - Ensures accuracy of concentration measurements when using Isotope Dilution Method
- Resolution
  - Minimize mass number interferences
- Oxide & Double Charged Ion Ratios
  - Control the oxide level to minimize mass number interferences
- Sensitivity & Stability
  - Verify the repeatability of the instrument
- Mass Accuracy & Stability
  - Evaluation of the accuracy of the analysis
- Short & Long Term Stability
  - Evaluate of the precision of the analysis
- Cross Calibration
  - Verify the calibration of the pulse & analog detectors
- Mass Abundance
  - Verify the ability of the instrument to measure different isotopes
- "Cool" Plasma & Dynamic Reaction Cell (DRC) Performance
  - Verify the Isobaric Spectral Overlaps
- Detector "Cut-Off"
  - Detect potential problems at low concentrations

Ordering Information

Description	Code	Catalog Number
*Plasma***TEST for ICP-MS Kit (English)**	✓ ⑧	140-128-021
*Plasma***TEST for ICP-MS Kit (French)**	✓ ⑧	140-128-031

Re-ordering Information

Description	Code	Catalog Number
Ratio Solution	✓ ⑧	140-128-022
Stability Solution	✓ ⑧	140-128-023
Stability (Brine)	✓ ⑧	140-128-024
Verification Solution	✓ ⑧	140-128-025
Plasma Solution	✓ ⑧	140-128-026
Log Book (English)		140-128-027
Log Book (French)		140-128-037

⊗ *Glass Container* ⑥ *Poison* ③ *Flammable*
✓ *Dangerous Goods** ⑧ *Corrosive* ⑤ *Oxidant*

* as defined by :
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Certificate of Analysis: Single Element Standard

Certificate of Analysis

Mg

Catalogue Number : **140-051-121 / 140-051-122 / 140-051-125**
Description : ***Plasma*CAL Standard - Magnesium 1000 µg/ml**
Starting Material : **Magnesium Metal 99.99%**
Lot Number : **SC4363253**
Expiration Date : **October 2006**
(*Unopened Bottle*)

Opened Bottle Expiry Information
15 months after opening, up to unopened expiration date

_____
Date bottle opened

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Material 3131a.

Actual Concentration : **1004 µg/ml**
Matrix : **4% HNO_3**
Density : **1.021 g/ml @ 21.8 °C**

Trace Metallic Impurities

1. Starting Material

Element	Conc. (ppm)
Al, Fe, Si, Zn	5-15
Cu, Mn	5-10

2. Final Solution

Element	Conc. (ppm)	Element	Conc. (ppm)	Element	Conc. (ppm)
Ag	< 0.005	Ho	< 0.006	S	*
Al	< 0.013	In	< 0.034	Sb	< 0.029
As	< 0.001	Ir	< 0.016	Sc	< 0.002
Au	< 0.004	K	< 0.093	Se	< 0.027
B	< 0.017	La	< 0.004	Si	< 0.005
Ba	< 0.0005	Li	< 0.003	Sm	< 0.003
Be	< 0.001	Lu	< 0.0006	Sn	< 0.037
Bi	< 0.026	Mg	**N/A**	Sr	< 0.001
Ca	**0.014**	Mn	**0.019**	Ta	< 0.013
Cd	< 0.003	Mo	< 0.016	Tb	< 0.006
Ce	< 0.019	Na	< 0.011	Te	< 0.014
Co	< 0.007	Nb	< 0.009	Th	< 0.012
Cr	< 0.004	Nd	< 0.018	Ti	< 0.001
Cs	*	Ni	< 0.006	Tl	< 0.013
Cu	< 0.0003	Os	*	Tm	< 0.007
Dy	< 0.004	P	< 0.034	U	< 0.137
Er	< 0.008	Pb	< 0.041	V	< 0.001
Eu	< 0.002	Pd	< 0.007	W	< 0.015
Fe	< 0.002	Pr	< 0.213	Y	< 0.003
Ga	< 0.011	Pt	< 0.017	Yb	< 0.0008
Gd	< 0.003	Rb	< 0.027	Zn	**0.024**
Ge	< 0.011	Re	< 0.004	Zr	< 0.007
Hf	< 0.025	Rh	< 0.024		
Hg	*	Ru	< 0.008	*: Not Tested	

Certified by : _____
Alketa Mixha, Chemist

Certification Date : **January 19, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within ± 0.5% of the actual concentration up to the unopened expiry date, if sealed, or 15 months after opening, up to the unopened expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 meghom/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE
21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
Phone : (514) 457-0701 Fax : (514) 457-4499
Web Site: www.scpscience.com

Certificate of Analysis

Catalogue Number : **140-102-051/140-102-052/140-102-055**
Description : ***Plasma*CAL- Q.C. Standard 3**
Lot Number : **SC4365281**
Expiration Date : **April 2006**

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Materials : 3103a, 3105a, 3109a, 3108, 3113, 3112a, 3114, 3126a, 3129a, 3131a, 3132, 3134, 3136, 3128, 3102a, 3149, 3153a, 3162a, 3158, 3165, 3168a

Actual Concentrations

As :	**100.5 µg/ml**	**Fe :**	**100.9 µg/ml**	**Sb :**	**101.0 µg/ml**
Be :	**99.8 µg/ml**	**Li :**	**100.5 µg/ml**	**Se :**	**100.1 µg/ml**
Ca :	**100.8 µg/ml**	**Mg :**	**101.0 µg/ml**	**Sr :**	**100.9 µg/ml**
Cd :	**100.3 µg/ml**	**Mn :**	**100.8 µg/ml**	**Ti :**	**100.7 µg/ml**
Co :	**100.7 µg/ml**	**Mo :**	**100.7 µg/ml**	**Tl :**	**100.3 µg/ml**
Cr :	**100.3 µg/ml**	**Ni :**	**100.5 µg/ml**	**V :**	**100.2 µg/ml**
Cu :	**99.4 µg/ml**	**Pb :**	**100.6 µg/ml**	**Zn :**	**100.4 µg/ml**

Matrix : **5% HNO_3**

Certified by : _____
Alketa Mixha, Chemist

Certification Date : **January 13, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within plus or minus 1.0% of the actual concentration up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)
SCP SCIENCE
21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
Phone : (514) 457-0701 Fax : (514) 457-4499
Web Site: www.scpscience.com

Certificate of Analysis: Custom Multi Standard

Certificate of Analysis

Catalogue Number : **901-6A8-102**
Description : ***Plasma*CAL - Multi-Element Standard**
Lot Number : **SC5026493**
Expiration Date : **February 2006**

Analysis of Solution Standard by Inductively Coupled Plasma Spectroscopy (ICP-AES) traceable to NIST Standard Reference Materials : 3151, 3101a, 3103a, 3107, 3104a, 3105a, 3106, 3109a, 3108, 3113, 3112a, 3114, 3126a, 3119a, 3141a, 3127a, 3129a, 3131a, 3132, 3134, 3152a, 3136, 3128, 3102a, 3149, 3153a, 3159, 3162a, 3158, 3165, 3168a

Actual Concentrations

Ag :	**9.94 µg/ml**	**Cu :**	**9.95 µg/ml**	**Pb :**	**10.08 µg/ml**
Al :	**9.97 µg/ml**	**Fe :**	**10.03 µg/ml**	**Sb :**	**10.09 µg/ml**
As :	**10.06 µg/ml**	**Ga :**	**9.99 µg/ml**	**Se :**	**9.92 µg/ml**
B :	**10.05 µg/ml**	**K :**	**10.01 µg/ml**	**Sr :**	**10.04 µg/ml**
Ba :	**9.97 µg/ml**	**La :**	**9.97 µg/ml**	**Th :**	**9.98 µg/ml**
Be :	**9.90 µg/ml**	**Li :**	**10.01 µg/ml**	**Ti :**	**10.00 µg/ml**
Bi :	**10.03 µg/ml**	**Mg**	**10.00 µg/ml**	**Tl :**	**9.99 µg/ml**
Ca :	**9.97 µg/ml**	**Mn**	**10.05 µg/ml**	**V :**	**9.96 µg/ml**
Cd :	**9.98 µg/ml**	**Mo**	**9.98 µg/ml**	**Zn :**	**9.98 µg/ml**
Co :	**9.90 µg/ml**	**Na :**	**10.01 µg/ml**		
Cr :	**9.94 µg/ml**	**Ni :**	**9.97 µg/ml**		

Matrix : **5% HNO_3**

Certified by : _____
Alketa Mixha, Chemist

Certification Date : **February 3, 2005**

This ICP-AES & ICP-MS Standard is guaranteed to be stable and accurate to within plus or minus 1.0% of the actual concentration up to the expiry date, provided the solution is kept tightly capped and stored under normal laboratory conditions. For these solutions, 18 megohm/cm double deionized water, high-purity acids, Class A glassware and acid-cleaned bottles are used. The Material Safety Data Sheet and this Certificate of Analysis are available on our web site. (Ce certificat est également disponible en français)

Manufactured according to an ISO 9001:2000 Quality System and ISO 17025 (in-process)

SCP SCIENCE
21800 Clark Graham, Baie D'Urfé, QC, Canada H9X 4B6
Phone : (514) 457-0701 Fax : (514) 457-4499
Web Site: www.scpscience.com

*Plasma*CAL Single Element Standards Request Form

Complete this form to place an order or to receive a quotation for your specific *Plasma***CAL** Single Element Standard. Photocopy for use with multiple requests.

Contact Information:

Name: _____

Title: _____

Company: _____

Mailing Address: _____

City: _____ Province/State: _____ PC/Zip: _____ Country: _____

Telephone: _____ Fax: _____

E-mail: _____ Account No: _____

Please indicate the element, volume and concentration required:

		125 ml	250 ml	500 ml	1000 µg/ml	10 000 µg/ml
Al	Aluminum (HNO_3)	☐	☐	☐	☐	☐
Al	Aluminum (HCl)	☐	☐	☐	☐	☐
Ag	Silver	☐	☐	☐	☐	☐
As	Arsenic	☐	☐	☐	☐	☐
Au	Gold	☐	☐	☐	☐	☐
B	Boron	☐	☐	☐	☐	☐
Ba	Barium	☐	☐	☐	☐	☐
Be	Beryllium	☐	☐	☐	☐	☐
Bi	Bismuth	☐	☐	☐	☐	☐
Ca	Calcium	☐	☐	☐	☐	☐
Cd	Cadmium	☐	☐	☐	☐	☐
Ce	Cerium	☐			☐	☐
Co	Cobalt	☐	☐	☐	☐	☐
Cr	Chromium (HNO_3)	☐	☐	☐	☐	☐
Cr	Chromium (HCl)	☐	☐	☐	☐	☐
Cs	Cesium	☐			☐	☐
Cu	Copper	☐	☐	☐	☐	☐
Dy	Dysprosium	☐			☐	☐
Er	Erbium	☐			☐	☐
Eu	Europium	☐			☐	☐
Fe	Iron	☐	☐	☐	☐	☐
Ga	Gallium	☐	☐	☐	☐	☐
Gd	Gadolinium	☐			☐	☐
Ge	Germanium	☐			☐	☐
Hf	Hafnium	☐			☐	☐
Hg	Mercury	☐	☐	☐	☐	☐
Ho	Holmium	☐			☐	☐
In	Indium	☐			☐	☐
Ir	Iridium	☐			☐	☐
K	Potassium	☐	☐	☐	☐	☐
La	Lanthanum	☐			☐	☐
Li	Lithium	☐	☐	☐	☐	☐
Lu	Lutetium	☐			☐	☐
Mg	Magnesium	☐	☐	☐	☐	☐
Mn	Manganese	☐	☐	☐	☐	☐
Mo	Molybdenum	☐	☐	☐	☐	☐
Na	Sodium	☐	☐	☐	☐	☐
Nb	Niobium	☐			☐	☐
Nd	Neodymium	☐			☐	☐
Ni	Nickel	☐	☐	☐	☐	☐
Os	Osmium	☐			☐	
P	Phosphorus	☐	☐	☐	☐	☐
Pb	Lead	☐	☐	☐	☐	☐
Pd	Palladium	☐	☐	☐	☐	☐
Pr	Praseodymium	☐			☐	☐
Pt	Platinum	☐	☐	☐	☐	
Rb	Rubidium	☐			☐	☐
Re	Rhenium	☐			☐	☐
Rh	Rhodium	☐			☐	☐
Ru	Ruthenium	☐			☐	☐
S	Sulfur	☐	☐	☐	☐	☐
Sb	Antimony	☐	☐	☐	☐	☐
Sc	Scandium	☐	☐	☐	☐	☐
Se	Selenium	☐	☐	☐	☐	☐
Si	Silicon	☐	☐	☐	☐	☐
Sm	Samarium	☐			☐	☐
Sn	Tin	☐	☐	☐	☐	☐
Sr	Strontium	☐	☐	☐	☐	☐
Ta	Tantalum	☐			☐	☐
Tb	Terbium	☐			☐	☐
Te	Tellurium	☐			☐	☐
Th	Thorium	☐			☐	☐
Ti	Titanium	☐	☐	☐	☐	☐
Tl	Thallium	☐	☐	☐	☐	☐
Tm	Thulium	☐			☐	☐
U	Uranium	☐			☐	☐
V	Vanadium	☐	☐	☐	☐	☐
W	Tungsten	☐	☐	☐	☐	
Y	Yttrium	☐	☐	☐	☐	☐
Yb	Ytterbium	☐			☐	☐
Zn	Zinc	☐	☐	☐	☐	☐
Zr	Zirconium	☐	☐	☐	☐	☐

Fax form back to:

USA **(800) 253-5549**
Canada / International **(800) 253-5549 / (514) 457-4499**
Europe **+33 (0)1 60 92 05 67**

Custom Standards Request Form

Complete this form to receive a quotation for your specific Custom Multi-Element Standard. Purchase 500 ml of a custom standard and receive an additional 500 ml bottle of the same standard at 1/2 price. Photocopy for use with multiple requests.

Contact Information:

Name: _____

Title: _____

Company: _____

Mailing Address: _____

City: _____ Province/State: _____ PC/Zip: _____ Country: _____

Telephone: _____ Fax: _____

E-mail: _____ Account No: _____

Please indicate the concentration µg/ml (ppm) required for each element:

Al	Aluminum	In	Indium	Sc	Scandium
Ag	Silver	Ir	Iridium	Se	Selenium
As	Arsenic	K	Potassium	Si	Silicon
Au	Gold	La	Lanthanum	Sm	Samarium
B	Boron	Li	Lithium	Sn	Tin
Ba	Barium	Lu	Lutetium	Sr	Strontium
Be	Beryllium	Mg	Magnesium	Ta	Tantalum
Bi	Bismuth	Mn	Manganese	Tb	Terbium
Ca	Calcium	Mo	Molybdenum	Te	Tellurium
Cd	Cadmium	Na	Sodium	Th	Thorium
Ce	Cerium	Nb	Niobium	Ti	Titanium
Co	Cobalt	Nd	Neodymium	Tl	Thallium
Cr	Chromium	Ni	Nickel	Tm	Thulium
Cs	Cesium	Os	Osmium	U	Uranium
Cu	Copper	P	Phosphorus	V	Vanadium
Dy	Dysprosium	Pb	Lead	W	Tungsten
Er	Erbium	Pd	Palladium	Y	Yttrium
Eu	Europium	Pr	Praseodymium	Yb	Ytterbium
Fe	Iron	Pt	Platinum	Zn	Zinc
Ga	Gallium	Rb	Rubidium	Zr	Zirconium
Gd	Gadolinium	Re	Rhenium		
Ge	Germanium	Rh	Rhodium		
Hf	Hafnium	Ru	Ruthenium		
Hg	Mercury	S	Sulfur		
Ho	Holmium	Sb	Antimony		

Matrix Required: _____

Rate of Use (L/yr): _____

Special Requirements: _____

Fax form back to:

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Canada / International	**(800) 253-5549 / (514) 457-4499**
Europe	**+33 (0)1 60 92 05 67**